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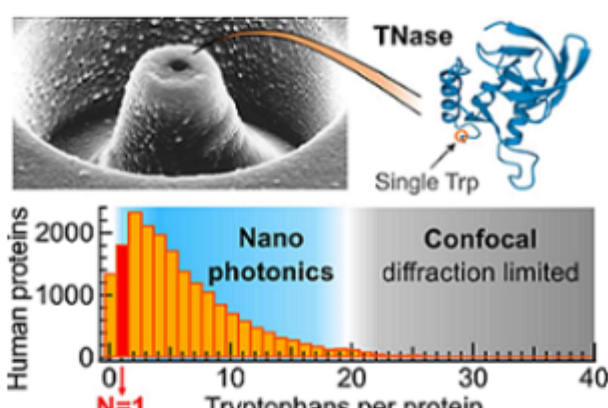
## SPECTROSCOPY NEWSLETTER

The latest news, features, and product developments in spectroscopy technology – brought to you by Photonics Media. Manage your Photonics Media membership at [Photonics.com/subscribe](https://Photonics.com/subscribe).



### Nanophotonics Signal Enhancement Enables Label-Free Proteins Study

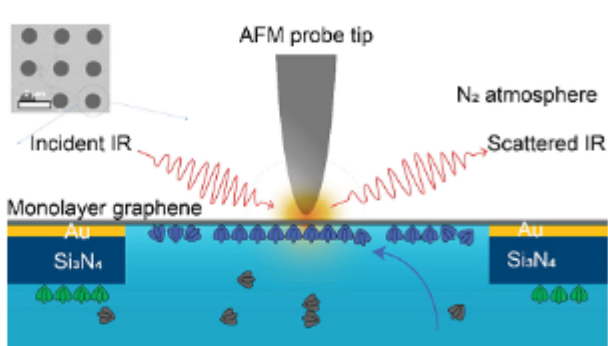
Researchers at Institut Fresnel have developed a technique to detect the ultraviolet-autofluorescence signal in single proteins, opening the way for the label-free study of thousands of proteins whose natural fluorescence cannot be detected using existing technology. Using a combination of plasmonic antennas, antioxidants, and background reduction techniques, the researchers, led by Jérôme Wenger, improved the signal-to-background ratio in UV-autofluorescence proteins by more than one order of magnitude — enough to enable label-free detection.



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### Nanoscale Imaging Captures Soft Matter in Vitro

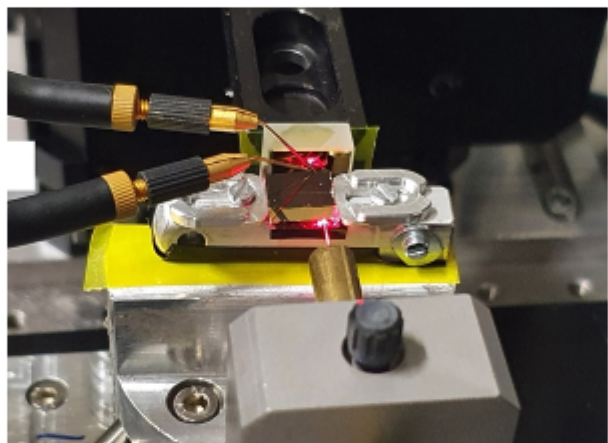
Lawrence Berkeley National Laboratory researchers developed an imaging platform that enabled nondestructive spectroscopic imaging of soft materials with nanometer spatial resolution, under in vitro conditions and external stimuli. The researchers performed the nanometer-scale spatial resolution imaging of proteins in the proteins' natural liquid environment, and observed how the self-assembly of the proteins was affected by environmental conditions in the surrounding liquid. Such a characterization of biological macromolecules is central to bioengineering research, though current imaging often uses ionizing radiation under conditions that are far from the molecule's native biological environment.



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### Miniaturized Spectrometer Proves Fit for Compact Electronics

Scientists in Europe have collaborated to develop an ultracompact spectrometer design that offers large bandwidth, moderate spectral resolution, and a spectral sensitivity in the infrared region. According to the team, its design for a Fourier-transform waveguide spectrometer will allow optical measurement instruments to be integrated into compact devices such as consumer electronics and ultrasmall satellites.



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## .: Featured Products & Services



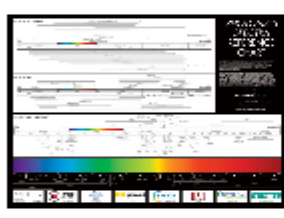
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[Photonics Spectra Reference Chart](#)

**Photonics Media**

This full-color, 30 × 20.5-inch poster of the photonics spectrum displays the major commercial laser lines, detectors and optical materials in the ultraviolet to the far-infrared and beyond. The chart was updated in 2021 to reflect the changing technologies in the photonics industry. The convenient format makes it easy to quickly find the information you need.

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## .: More News

### Pump-Probe Spectroscopy Helps Achieve Chiral Molecular Control

An international research team at Freie Universität Berlin, in collaboration with colleagues at the DESY research center, Kiel University, and Kansas State University, has proposed a quantum-chemical calculation-based approach to induce and probe chiral vibrational motion using pump-probe spectroscopy. Such an approach aims provide a solution to achieve absolute asymmetric synthesis, or the control of product chirality using only light fields.

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### Dxcover Raises \$11.9M to Advance Liquid Biopsy Platform

Glasgow, Scotland-based startup Dxcover has raised \$11.9 million in series A and grant financing to support the development of its liquid biopsy technology platform for the detection of early-stage cancers, including brain and colorectal cancers. The company's technique uses infrared spectroscopy to analyze patient blood samples, and artificial intelligence algorithms to detect the presence or absence of disease.

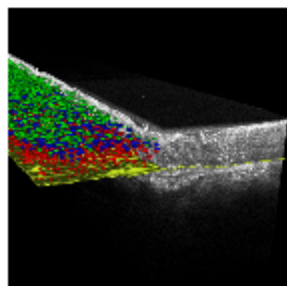
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### Spectroscopy and Machine Learning Focus Lens on Far Reaches of the Universe

Researchers from the ARC Centre of Excellence for All Sky Astrophysics in 3 Dimensions (ASTRO 3D) and the University of New South Wales (UNSW) Sydney spectroscopically confirmed a number of strong gravitational lenses that were initially identified using convolutional neural networks (CNNs).

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## .: Upcoming Webinars



### Technical Advancements in Line-Field Confocal Optical Coherence Tomography for Improving the Management of Skin Cancer

Tue, Feb 28, 2023 10:00 AM - 11:00 AM EST

Line-field confocal optical coherence tomography (LC-OCT) is an imaging technique based on a combination of reflectance confocal microscopy and time-domain OCT. It can generate cellular-resolution vertical images, horizontal cross-sectional images, and three-dimensional (3D) images, yielding the possibility for optical biopsies of skin tissue in vivo and in real time. Jonas Ogien, Ph.D., of DAMAE Medical introduces the basic principles of LC-OCT and shares an overview of new technical advancements based on the technique.

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